

# ATOMIC ENERGY *newsletter*®

A SERVICE FOR INDUSTRY BUSINESS ENGINEERING AND RESEARCH  
ROBERT M. SHERMAN, EDITOR. PUBLISHED BI-WEEKLY BY ATOMIC ENERGY NEWS CO., 1000 SIXTH AVENUE, NEW YORK 18, N. Y.

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Dear Sir:

Loan of \$34 million has been made by Export-Import Bank to Istituto Mobiliare Italiano (IMI) to assist financing of 165,000 electrical KW nuclear power plant near Milan, Italy. The loan to IMI (a major credit institution for industry financing in Italy) was for the benefit of Societa Elettro-nucleare Italiana (SELNI), and was the second international credit established in the last two months to finance an Italian nuclear power plant. (First, in amount of \$40 million, was by the World Bank, and was for Cassa per il Mezzogiorno -- like IMI, an agency of the Italian government -- to assist financing the \$66.4 million nuclear power station of 150,000 electrical KW capacity to be built by Societa Elettro-nucleare Nazionale (SENN) between Rome and Naples.) SELNI will spend substantial portion of the funds in the U.S. Westinghouse Electric is providing both nuclear and electrical generating facilities. Gibbs & Hill, New York, have architect-engineering job. Franco Tosi, Legnano, Italy will build the steam turbine under Westinghouse license. USAEC will supply fuel on deferred payment plan since the project qualifies for U.S. - EURATOM agreement terms. (Other FINANCIAL NEWS, p. 5 this LETTER.)

Thorium, Ltd., British supplier of most of the U. K.'s requirements for refined thorium oxide and salts, and leading contractor to the U. K. Atomic Energy Authority for such materials, has been sold by Imperial Chemical Industries and Howards of Ilford, to Rio Tinto Co., Ltd., London, and Dow Chemie AG, Swiss subsidiary of Dow Chemical Co. Rio Tinto and Dow, in acquiring Thorium's share capital, have thus expanded their interest in thorium oxide and salts. The firms have been associated since 1958 in Rio Tinto Dow, Ltd, a Canadian company which began producing in May, 1959, crude thorium salts from the treatment of the barren liquors from uranium extraction at Algom Uranium Mines' Quirke mill (a Rio Tinto property) in the Elliot Lake area of Ontario. (Other BUSINESS NEWS, p. 2 ).

Contract for study of radiation effects has been awarded by the U. S. Navy's Bureau of Ordnance to Radiation Dynamics, Inc., Westbury, L. I., New York. The study will cover effects of radiation on electrical fuse components in rockets, missiles and shells. (Other CONTRACT NEWS, p. 5 this LETTER.)

One third of the exhibit space in the Atomic Exposition, scheduled for New York's Coliseum, April 4-7, 1960, has been reserved in the first two and one-half weeks since bookings began. Some 46 companies in the nuclear field took up this space. Managing and allocating of exhibits is being handled by headquarters of the Atomic Exposition, 117 So. 17th St., Philadelphia 3, Pa. (Other MEETINGS, COURSES, CONFERENCES, p. 2 this LETTER.)

New sales representatives to handle products of Tracerlab, Inc., are R. L. Holliday Co. who will cover the Pittsburgh, Buffalo and Cleveland areas. Holliday will add Tracerlab beta gauge and radiography systems to its line which includes specialized devices for non-destructive testing and inspection work. (Other MANUFACTURERS' NEWS, p. 3 this LETTER.)

### ATOMIC ENERGY BUSINESS NEWS...

EXPANSION OF FUEL PRODUCTION FACILITIES:- Nuclear core manufacturing laboratories of Westinghouse Electric Corp. at Cheswick, Pa., are being expanded to provide additional development and production facilities for fuel elements and core components used in the atomic power industry. The new facility, which is nearing completion, will house a newly formed group -- the Nuclear Components Development Laboratory. Heretofore, cores built in the present building have been under government contracts for use in the Navy's nuclear propulsion program. The new laboratory will be available to industry and government customers for evaluation programs and to conduct pilot and full production on all nuclear fuels and materials. Initial work will be directed at improving uranium oxide fuel element fabrication and uranium alloy fuels clad in such materials as zirconium, niobium, molybdenum, and stainless steel, according to Ira G. Fox, general manager of Westinghouse's atomic fuel department.

SUBMARINE COMMISSIONING SET:- Nuclear powered submarine Triton, first to be equipped with twin nuclear reactors, is to be commissioned today (Nov. 10) at the Groton, Conn., yards of Electric Boat division of General Dynamics Corp. The reactors for the 447-ft. craft, supplied by General Electric Co., are pressurized water cooled; each will deliver higher shaft horsepower than any other submarine propulsion unit, with lowest weight per shaft horsepower yet achieved. Unique feature is use of unit-cell core construction, permitting in-hull refueling. Combination of this in-hull refueling ability, and an access hatch, permits refueling at sea anchorage with the aid of a tender; heretofore nuclear submarines had to be refueled at dockside using heavy equipment to open the hull and remove the complete core. Refueling at sea anchorage is said to save from four to six weeks over dockside refueling. A new twisted ribbon type fuel element used offers increased heat transfer efficiency over present plate-type fuel elements.

### MEETINGS, COURSES, CONFERENCES...

SYMPOSIA:- Symposium on Gas Cooled Reactors is planned for Feb. 10-11, 1960, at Philadelphia. It is being co-sponsored by Franklin Institute and Delaware Valley section, American Nuclear Society. Further information may be obtained from Francis L. Jackson, Franklin Institute, Phila., Pa.

Nuclear Education Symposium is scheduled for Jan. 15, 1960 in New York. Baird-Atomic, Inc., with its subsidiaries Atomic Associates and Atomic Accessories, are the sponsors. National Science Foundation, USAEC, and university people will review educational programs, governmental support of certain phases, etc. Complete details are available from Symposium Committee, Baird-Atomic, Inc., 33 University Rd., Cambridge 38, Mass.

CONFERENCES:- Practical aspects of the disposal of radioactive wastes resulting from commercial nuclear energy work will be considered at conference scheduled for Nov. 16-21, 1959, in the Principality of Monaco. Sponsoring the conference are the International Atomic Energy Agency and UNESCO, with the active cooperation of the Food and Agricultural Organization. Main objectives are to familiarize geologists, oceanographers and fisheries experts with problems involved in nuclear waste disposal, and to enable them to discuss specific questions with specialists in this field.

MEETINGS:- Aircraft Nuclear Propulsion and Small Reactors will be covered at information meetings planned for Feb. 11 and Aug. 11, 1960, at Oak Ridge, Tenn. Preliminary arrangements may be made through R. A. Charpie, ORNL, P. O. Box Y, Oak Ridge.

COURSES:- Third reactor school course on Control and Instrumentation of Reactors will be held at Bournemouth, England, Feb. 1-12, 1960 for British and overseas students. Full information may be obtained from the Principal, Reactor School, AERE, Harwell, England.

### PEOPLE...

John M. Wild has joined General Atomic division of General Dynamics Corp., San Diego, Calif. Mr. Wild, developer of the three dimensional boundary layer theory of aerodynamics, will direct GA's Project Orion. This is a program for using controlled nuclear pulses for propulsion of space vehicles.

Nine scientists and engineers from the Soviet Union who arrived in the U.S. last week will visit until Nov. 19 U.S. atomic energy installations. They are under direction of V. S. Emelynov, head of the main Administration for Utilization of Atomic Energy in the U.S.S.R.

PRODUCTS, PROCESSES, INSTRUMENTS...

PRODUCT NEWS: An evaporator of new design and construction now being fabricated by Chicago Bridge & Iron Co. for use in the Indian Point, New York nuclear power plant of Consolidated Edison Co. will be entirely of Inconel (nickel alloy), with an entrainment section of woven stainless steel six times the usual thickness. Measuring 19-ft. in height, by 6½-ft. in diameter, it is being engineered for a 6,000 lb/hr. boil off. The unit will accept wash-down and purge water from the entire plant; less than five parts in 100 million of dissolved solids will remain in the discharge which will go to an ion-exchange unit for further reduction of solids.

New isotope transport container to assure proper delivery to their customers using gamma radiographic machines has been designed by M. Falk and Co., Ltd., Emefco House, Reigate, England and has been approved by that country's Ministry of Transport and Civil Aviation. It is said to be the only type of container so far authorized for such commercial operations. The containers vary according to the load to be carried, and are designed to take the standard Harwell cobalt, iridium, thulium, and cesium capsules as well as the isotope capsules made in Canadian or European reactors.

REACTOR NEWS: Initial chain reaction has been sustained by Italy's first privately owned nuclear research reactor. This is the 5,000 thermal KW pool-type reactor owned and operated by Societa Ricerche Impianti Nucleari (SORIN) near Milan. American Machine & Foundry Co., New York, built the reactor which uses the new mechanically bonded fuel produced by General Electric Co.'s atomic power equipment department, San Jose, Calif. (Fabrication of this fuel by a special pressure-bonding method eliminates need for brazing or welding, reducing corrosion, etc., from brazing flux, and permits use of higher strength alloys than ordinarily would be employed.)

Self sustaining chain reaction has been attained in the Argonne fast source reactor (AFSR), a new facility designed and engineered by Argonne National Laboratory, Lemont, Ill., and built at the National Reactor Testing Station, Arco, Idaho, by Arrington Construction Co. Core and control mechanisms were fabricated by the Laboratory's central shops. The AFSR is a small accessible reactor to be used for such purposes as developing and checking out new neutron detectors required in fast power reactor experiments; preparing radioactive metallic foils used to develop counting and radiochemical techniques; and for other experimental work.

MANUFACTURERS' NEWS: Ten thermal KW conventional swimming-pool reactor using ordinary light water for moderating and cooling will be supplied by Curtiss-Wright Corp. to the School of Mines & Metallurgy of the University of Missouri. Highly enriched uranium will be used as fuel in this student training reactor. Grant of \$150,000 has been made by the USAEC to the University for its purchase, and the Commission will also loan without charge the enriched uranium needed for the reactor fuel element.

Training reactor for Virginia Polytechnic Institute will be built by American Radiator-Standard Sanitary Corp., at estimated cost of \$173,440. Grant of \$114,098 has been made by the USAEC to VPI toward its cost.

Stanford University, which is to have a training reactor at its campus near Palo Alto, Calif., will obtain the reactor from General Electric Co. who will design and construct it. Of ten thermal kilowatt capacity, the facility will use ordinary light water for moderating and cooling, and highly enriched uranium as fuel. It will be similar in nuclear design to the Spanish open pool reactor constructed by GE. Stanford has received a grant of \$150,000 from the USAEC toward the facility's cost which will be approximately \$175,000.

Western regional sales headquarters have been set up at Redwood City, Calif., by High Voltage Engineering Corp., Burlington, Mass., manufacturers of particle accelerators. David R. Kneeland, who will head the new office, has been with High Voltage for the past year; he was formerly with Isotope Products, Inc., and Curtiss-Wright Corp.

MANUFACTURERS' LITERATURE: The radioactive isotope krypton-85 is discussed in four page catalog 345A of Air Reduction Sales Co., 150 E. 42nd St., New York 17, N.Y. ... Description, operation and specifications of instrument to continuously monitor radiation level of water supplies is covered in bulletin 3038-9 of Victoreen Instrument Co., Cleveland 14, Ohio ... Catalog 59 of Nucleonic Corp. of America, 196 Degraw St., Brooklyn 31, N.Y., describes the company's complete line of radiation detection and measurement instruments.



ATOMIC ENERGY PATENT DIGEST...

PATENTS ISSUED October 20, 1959 to GOVERNMENTAL ORGANIZATIONS: (1) Method for the recovery and purification of berkelium. E. K. Hulet, inventor. No. 2,909,405 assigned to USAEC. (2) Process for decontaminating thorium and uranium with respect to ruthenium. A. B. Meservey, R. H. Rainey, inventors. No. 2,909,406 assigned to USAEC. (3) Inhibiting the polymerization of nuclear coolants. E. L. Colichman, inventor. No. 2,909,486 assigned to USAEC. (4) Nuclear reactor coolant. E. L. Colichman, inventor. No. 2,909,487 assigned to USAEC. (5) Nuclear reactor coolant. E. L. Colichman, inventor. No. 2,909,488 assigned to USAEC. (6) Cavity excitation circuit. J. V. Franck, inventor. No. 2,909,731 assigned to USAEC.

PATENTS ISSUED October 27, 1959 to PRIVATE ORGANIZATIONS AND/OR INDIVIDUALS: (1) Irradiated concrete compositions. S. L. Ruskin, inventor. No. 2,910,372 assigned to Union Carbide Corp., New York. (2) Radioactivity processing device. O. K. Neville, B. F. Scott, inventors. No. 2,910,588 assigned to Nuclear-Chicago Corp., Des Plaines, Ill. (3) Carbon logging through casing. P. E. Baker, inventor. No. 2,910,591 assigned to California Research Corp., San Francisco, Calif. (4) Scintillation type detector. F. C. Armistead, inventor. No. 2,910,592 assigned to Texaco Development Corp., New York. (5) High temperature apparatus. Lyman Spitzer, Jr., inventor. No. 2,910,414 assigned to Research Corp., New York.

PATENTS ISSUED October 27, 1959 to GOVERNMENTAL ORGANIZATIONS: (1) Reactor component. E. C. Creutz, inventor. No. 2,910,177 assigned to USAEC. (2) Method of preparing uranium hexafluoride. N. R. Davidson, S. Fried, inventors. No. 2,910,344 assigned to USAEC. (3) Separation of polonium, protactinium, or mixtures, from bismuth, lead, zirconium, and/or columbium values. Q. Van Winkle, K. A. Kraus, inventors. No. 2,910,345 assigned to USAEC. (4) Method of coating graphite with stable metal carbides and nitrides. D. H. Gurinsky, inventor. No. 2,910,379 assigned to USAEC. (5) Nuclear reactor. Farrington Daniels, inventor. No. 2,910,416 assigned to USAEC. (6) Uranium bismuthide dispersion in molten metal. R. J. Teitel, inventor. No. 2,910,417 assigned to USAEC. (7) Nuclear reactor. E. C. Creutz, L. A. Ohlinger, A. M. Weinberg, E. P. Wigner, G. J. Young, inventors. No. 2,910,418 assigned to USAEC. (8) Solvent for extracting actinide salts. L. Kaplan, inventor. No. 2,910,442 assigned to USAEC. (9) Method for producing isotopic methanes from lithium carbonate and lithium hydride. J. W. Frazer, inventor. No. 2,910,519 assigned to USAEC.

TRADE-MARK NEWS: Trade mark Iriditope (SN-59,756) is to be issued Olin Mathieson Chemical Corp., New York, for radio-iridium preparations used therapeutically in medicine.

BOOKS & OTHER PUBLICATIONS...

Safe Handling of Radioisotopes. Guide to safety standards as established by organizations here and abroad. Available in English, French, Spanish and Russian language editions. 99 pages. -- International Publications, Inc., 801 Third Ave., New York 22. (\$1.00)

Effects of Nuclear Radiation on Men and Materials. T. Charles Helvey. A simplified, non-mathematical approach to the problems of nuclear powered mobile units. 64 pages. -- John F. Rider Publisher, Inc., 116 W. 14th St., New York 11. (\$1.80)

Materials in Space Environment: Proceedings of the 5th Sagamore Ordnance Materials Research Conference, Collection of 18 papers, and other discussions at this Conference held Sept. 1958, covering such topics as radiation and radiation effects in outer space, thermal problems under orbiting conditions, etc. No. PB-151900. 276 pages. (\$4.00) ... Penetration of Gamma Rays from Isotopic Sources Through Aluminum and Concrete. Report of work at National Bureau of Standards. No. PB-151370. 14 pages (50¢) ... Chemistry of Uranium: Collected Papers. Investigations by Argonne National Laboratory. Two volumes. No. TID-5290. 769 pages. (\$7.25) ... Office of Technical Services, Wash. 25, D.C.

Reactor Fuel Element Inspection. Work done at Convair, Fort Worth, Tex., in connection with the aircraft shield test reactor and ground test reactor. No. PB-142117. (\$3.60 microfilm; \$9.30 photostat) ... Multiple Crystal Gamma-Ray Spectroscopy Using Sodium Iodide-Thallium Iodide Crystals. Report of 1950 work at Oak Ridge by Fairchild Engine & Airplane Co., under its nuclear energy for propulsion of aircraft (NEPA) contract. No. PB-137383. (\$3.30 microfilm; \$7.80 photostat) Library of Congress, Wash. 25, D.C.

### ATOMIC ENERGY CONTRACT NEWS...

CONTRACT NEGOTIATIONS: Proposal of the Lummus Co., New York, for architect-engineer services for a 20,000 thermal KW high-flux research reactor, has been accepted by the USAEC. Contract will be negotiated by the Commission on the basis of the proposal which states Curtiss-Wright's research division, Quehanna, Pa., will be subcontractor for reactor design. To be built at Brookhaven National Laboratory, the high neutron flux will enable research programs not now possible with the lower fluxes available there. The reactor will contain uranium-aluminum alloy fuel plates and use heavy water as moderator, coolant and reflector. Estimated completion time is placed at three years, with total cost to be \$10 million.

BID INVITATION CHANGE MADE: Revision has now been made of USAEC bid invitation for participation by public power groups in the Commission's program to build small pressurized water nuclear power plant. The change requires that a conventionally-fueled superheater be included in the project. Original invitation had made this superheater optional. The December 21, 1959 deadline for proposals remains as originally set up. (Considerable interest has been shown in this plant, which will be in the 5-44 megawatt range, by public power groups. In extending its deadline, which had originally been set for August, 1959, the Commission said it had received 45 participation proposals from eligible groups.)

INSTRUMENT CONTRACTS AWARDED: Contracts for manufacture of standard radiological instruments and accessories have been awarded by Office of Civil Defense, Battle Creek, Mich., to some seven companies. Bendix Aviation Corp. received contract for \$306,024; Nucleonic Corp. of America, \$164,182; Anton Electronic Laboratories, \$1,240,108; Industrial Rectifier Co., \$133,552; Tracerlab, Inc., \$13,132; Humboldt Manufacturing Co., \$1,123 and C. G. Kelley & Co., \$45,855. OCDM will distribute the apparatus among the states for training purposes.

### ATOMIC ENERGY FINANCIAL NEWS...

NUCLEAR INSTRUMENT MANUFACTURER HAS RECORD SALES & EARNINGS: Net sales of Nuclear-Chicago Corp., Des Plaines, Ill., for the fiscal year ended Aug. 31, 1959 were \$5,147,238, an increase of \$1,296,160 over the like 1958 period. Net earnings for the 1959 period were \$532,986 against \$442,252 the previous fiscal year. Earnings per common share reached 81¢ this year, compared with 67¢ last year. Among new devices under development by the firm, which manufactures radiation measurement and detection instruments and accessories, is a new industrial measurement system; results of the prototype are encouraging, according to J. M. Phelan, president.

SALES DECLINE BY METAL PRODUCER: Sales decline in the third quarter of this year has brought earnings down for Lithium Corp. of America for the first nine months of this year. Sales totaled \$8,259,731 against the \$8,484,696 recorded in the like 1958 period. The sales decline in the third quarter was due to reduction in deliveries to the USAEC, and to the virtual elimination of the Government's high-energy boron fuel production program. The company held earnings up, however, and net totaled \$647,901 or 70¢ per share compared with \$645,867 or 69¢ per share in 1958. (The company is the defendant in a \$4,477,924 law suit brought by Quebec Lithium Corp. for alleged loss of profits when Lithium Corp. cancelled its contract with the Canadian firm.)

MUTUAL FUND SHOWS NET ASSET INCREASE: Axe Science & Electronics Corp., mutual fund with some 9.7% of its investments in firms wholly or partly concerned with nuclear energy work, had a 40% increase in total net assets between Sept. 30, 1958 and Sept. 30, 1959, to a total of \$11,893,154, Mrs. Ruth H. Axe, president, told her shareholders. Axe nuclear energy holdings include Canadian uranium mining companies; and firms in the U. S. doing uranium mining, furnishing equipment, producing (or that will produce) nuclear generated electrical energy, and doing research.

GAINS SHOWN BY METAL CONCERN: Beryllium Corp., Reading, Pa., supplier to the USAEC and commercially, had sales in the first nine months of this year of \$15,646,229. This compares with \$10,245,075 for the like 1958 period. Net income for the 1959 period was \$1,147,430 against \$275,729 in 1958, making per share earnings 92¢ compared with 22¢ last year.

Sincerely,

The Staff,  
ATOMIC ENERGY NEWSLETTER

November 10, 1959